

Claims

1 1. An adhesive for bonding circuit members which is
2 to be put between circuit electrodes facing each other;
3 said circuit electrodes facing each other being pressed
4 interposing the adhesive between them, to interconnect
5 the electrodes electrically in the direction of pressing;
6 said adhesive comprising an adhesive resin
7 composition and an ^{insulative} inorganic filler;
8 said ^{insulative} inorganic filler being contained in an amount
9 of from 10 to 200 parts by weight based on 100 parts by
10 weight of the adhesive resin composition.

1 2. An adhesive for bonding circuit members which is
2 to be put between circuit electrodes facing each other;
3 said circuit electrodes facing each other being pressed
4 interposing the adhesive between them, to interconnect
5 the electrodes electrically in the direction of pressing;
6 said adhesive being in multi-layer constitution
7 having;
8 a first adhesive layer comprising an adhesive resin
9 composition and an ^{insulative} inorganic filler and containing the
10 ^{insulative} inorganic filler in an amount of from 10 to 200 parts by
11 weight based on 100 parts by weight of the adhesive resin

12 composition; and

13 a second adhesive layer containing an adhesive resin
14 composition as a main ingredient.

1 3. An adhesive for bonding circuit members which is
2 to be put between circuit electrodes facing each other;
3 said circuit electrodes facing each other being pressed
4 interposing the adhesive between them, to interconnect
5 the electrodes electrically in the direction of pressing;
6 said adhesive being in multi-layer constitution
7 having;

8 a first adhesive layer comprising an adhesive resin
9 composition and an ^{insulative} inorganic filler and containing the
10 ^{insulative} inorganic filler in an amount of from 10 to 200 parts by
11 weight based on 100 parts by weight of the adhesive resin
12 composition; and

13 a second adhesive layer containing an adhesive resin
14 composition and having a modulus of elasticity of from
15 100 to 2,000 MPa at 40°C after curing.

1 4. An adhesive for bonding circuit members which is
2 to be put between circuit electrodes facing each other;
3 said circuit electrodes facing each other being pressed
4 interposing the adhesive between them, to interconnect

5 the electrodes electrically in the direction of pressing;

6 said adhesive comprising an adhesive resin

7 composition and an ^{inert} inorganic filler,

8 said adhesive having an average coefficient of

9 thermal expansion of 200 ppm/°C or below at 110 to 130°C

10 after curing.

1 5. The adhesive for bonding circuit members

2 according to claim 4, which has an average coefficient

3 of thermal expansion of from 30 to 200 ppm/°C at 110 to

4 130°C after curing of the adhesive.

1 6. An adhesive for bonding circuit members which is

2 to be put between circuit electrodes facing each other;

3 said circuit electrodes facing each other being pressed

4 interposing the adhesive between them, to interconnect

5 the electrodes electrically in the direction of pressing;

6 said adhesive being in multi-layer constitution

7 having a third adhesive layer and a fourth adhesive layer

8 which have physical properties different in value from

9 each other.

1 7. The adhesive for bonding circuit members

2 according to claim 6, wherein said ^{third} ~~first~~ adhesive layer

3 has a modulus of elasticity after curing which is higher
4 than the modulus of elasticity after curing of said ^{fourth} ~~second~~
5 adhesive layer.

1 8. The adhesive for bonding circuit members
2 according to claim 7, wherein said fourth adhesive layer
3 has a modulus of elasticity of from 100 to 2,000 MPa at
4 40°C after curing.

1 9. The adhesive for bonding circuit members
2 according to claim 6, wherein said third adhesive layer
3 has a coefficient of thermal expansion which is smaller
4 than the coefficient of thermal expansion of the fourth
5 adhesive layer.

1 10. The adhesive for bonding circuit members
2 according to claim 9, wherein said third adhesive layer
3 has a coefficient of thermal expansion at 30 to 100°C,
4 of from 20 to 70 ppm/°C.

1 11. The adhesive for bonding circuit members
2 according to claim 6, wherein said third adhesive layer
3 has a glass transition temperature which is higher than
4 the glass transition temperature of the fourth adhesive

5 layer.

1 12. The adhesive for bonding circuit members
2 according to claim 11, wherein said third adhesive layer
3 has a glass transition temperature of 120°C or above.

1 13. The adhesive for bonding circuit members
2 according to ^{claim 7} ~~any one of claims 7, 9 or 11~~, wherein at least
3 one layer of said third and fourth adhesive layers
4 contains;

5 the adhesive resin composition; and
6 the ^{insulative} inorganic filler in an amount of from 10 to 200
7 parts by weight based on 100 parts by weight of the
8 adhesive resin composition.

1 14. The adhesive for bonding circuit members
2 according to ^{claim 1} ~~any one of claims 1, 2, 3, 4 or 13~~, wherein
3 said ^{insulative} inorganic filler has an average particle diameter
4 of 3 μ m or smaller.

1 15. The adhesive for bonding circuit members
2 according to ^{claim} ~~any one of claims 1 to 14~~, comprising
3 conductive particles in an amount of from 0.1 to 30 parts
4 by volume based on 100 parts by volume of the adhesive

5 resin composition.

1 16. The adhesive for bonding circuit members
 2 according to ^{claim 1} ~~any one of claims 1, 2, 3, 4, 13 or 14,~~
 3 comprising conductive particles having a larger average
 4 particle diameter than the average particle diameter of
 5 said ^{insulative} inorganic filler, in an amount of from 0.1 to 30 parts
 6 by volume based on 100 parts by volume of the adhesive
 7 resin composition.

1 17. The adhesive for bonding circuit members
 2 according to ^{claim 1} ~~any one of claims 1 to 16,~~ which has a modulus
 3 of elasticity of from 30 to 2,000 MPa at 40°C after the
 4 curing of the adhesive resin composition.

1 18. The film adhesive for bonding circuits
 2 according to ^{claim 1} ~~any one of claims 1 to 17,~~ wherein said
 3 adhesive resin composition contains an epoxy resin and
 4 a latent curing agent.

1 19. The adhesive for bonding circuit members
 2 according to ^{claim 1} ~~any one of claims 1 to 18,~~ wherein said
 3 adhesive resin composition contains an epoxy resin, an
 4 acrylic rubber and a latent curing agent.

1 20. The adhesive for bonding circuit members
2 according to claim 19, wherein said acrylic rubber
3 contains a glycidyl ether group in the molecule.

1 21. The adhesive for bonding circuit members
2 according to ^{claim 1} ~~any one of claims 1 to 20~~, which has the form
3 of a film.

1 22. A circuit board comprising;
2 a first circuit member having a first connecting
3 terminal; and
4 a second circuit member having a second connecting
5 terminal;
6 said first connecting terminal and the second
7 connecting terminal being disposed facing each other, and
8 an adhesive being put between the first connecting
9 terminal and the second connecting terminal which are
10 disposed facing each other; and
11 said first connecting terminal and the second
12 connecting terminal disposed facing each other being
13 electrically interconnected by pressing;
14 said adhesive being the adhesive for bonding circuit
15 members according to ^{claim 1} ~~any one of claims 1 to 21~~,

1 23. The circuit board according to claim 22,

2 wherein;

3 said first circuit member is an inorganic insulating
4 substrate;

5 said second circuit member is an organic insulating
6 substrate;

7 said adhesive is the adhesive for bonding circuit
8 members according to claim 2 or 3; and

9 at least any of said first adhesive layer stands
10 adhered on the side of said first circuit member.

1 24. The circuit board according to claim 22,

2 wherein;

3 said first circuit member is an inorganic insulating
4 substrate;

5 said second circuit member is an organic insulating
6 substrate;

7 said adhesive is the adhesive for bonding circuit
8 members according to any one of claims 7 to 13; and

9 at least any of said third adhesive layer stands
10 adhered on the side of said first circuit member.

1 25. The circuit board according to claim 23 or 24,

2 wherein;

3 ~~said first circuit member is a semiconductor chip.~~

1 26. A process for producing a circuit board,
2 comprising the steps of;

3 disposing a first circuit member comprised of an
4 inorganic insulating substrate, having a first
5 connecting terminal, and a second circuit member
6 comprised of an organic insulating substrate, having a
7 second connecting terminal, in such a way that the first
8 connecting terminal and the second connecting terminal
9 face each other;

10 said circuit members being so disposed that the
11 adhesive for bonding circuit members according to claim
12 2 ~~or 3~~ is put between said first connecting terminal and
13 said second connecting terminal which have been disposed
14 facing each other, in such a way that said first adhesive
15 layer is on the side of said first circuit member; and
16 pressing the resultant circuit members to
17 electrically interconnect said first connecting terminal
18 and said second connecting terminal disposed facing each
19 other.

27. A process for producing a circuit board,
comprising the steps of;

disposing a first circuit member comprised of an inorganic insulating substrate, having a first connecting terminal, and a second circuit member comprised of an organic insulating substrate, having a second connecting terminal, in such a way that the first connecting terminal and the second connecting terminal face each other;

said circuit members being so disposed that the adhesive for bonding circuit members according to ~~any one~~ ^{claim 7} ~~of claims 7 to 13~~ is put between said first connecting terminal and said second connecting terminal which have been disposed facing each other, in such a way that said third adhesive layer is on the side of said first circuit member; and

pressing the resultant circuit members to electrically interconnect said first connecting terminal and said second connecting terminal disposed facing each other.

add
A'

add
B'